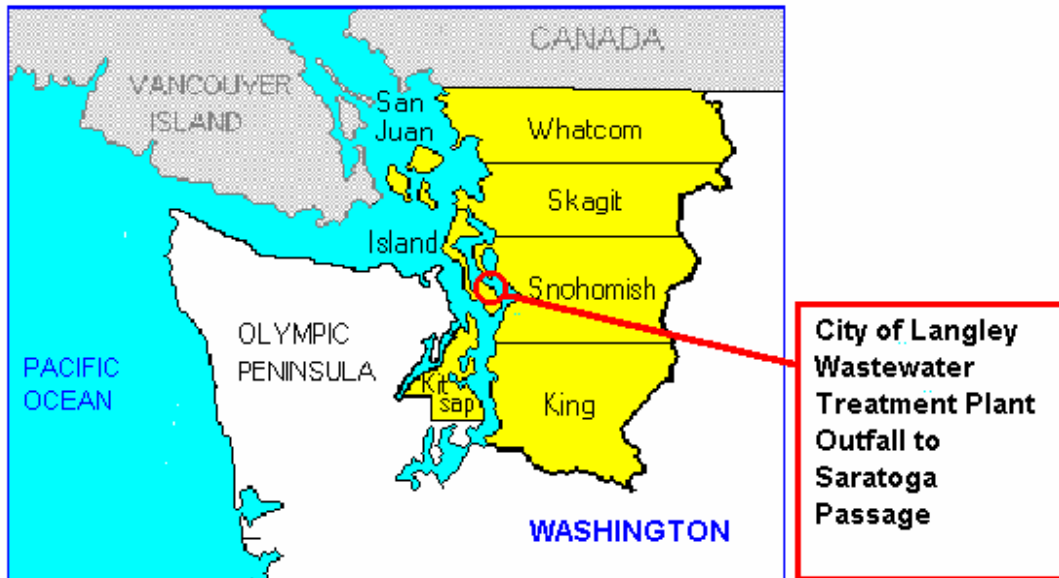


FACT SHEET FOR NPDES PERMIT WA-002070-2 **CITY OF LANGLEY WASTEWATER TREATMENT PLANT**



SUMMARY

This fact sheet is a companion document to the draft National Pollutant Discharge Elimination System (NPDES) Permit for the Langley Wastewater Treatment Plant (WWTP). The fact sheet explains the nature of the proposed discharge, the Department of Ecology's (the Department's) decisions on limiting the pollutants in the wastewater, and the regulatory and technical basis for those decisions. The fact sheet and draft permit are available for review (see Appendix A--Public Involvement for more detail on the Public Notice procedures). This proposed permit contains few changes to the effluent limits from the previous permit. Effluent monitoring will be reduced, with ammonia monitoring no longer required, and less process control monitoring specified.

GENERAL INFORMATION	
Applicant	City of Langley P.O. Box 366 Langley, WA 98260 Phone (360) 221-4246
Facility Name and Address	Langley Wastewater Treatment Plant 4999 Coles Road, Langley, WA 98260 Phone (360) 221-4274
Responsible Official	Honorable Neil Colburn, Mayor
Type of Treatment:	Sequencing Batch Reactor (Secondary Treatment)
Discharge Location	Saratoga Passage, Class A Marine Latitude: 48° 02' 38" N Longitude: 122° 24' 33" W
Plant Contact	Kelly Wynn, Contract Operator, Water & Wastewater Services

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INTRODUCTION

The Federal Clean Water Act (FCWA, 1972, and later modifications, 1977, 1981, and 1987) established water quality goals for the navigable (surface) waters of the United States. One of the mechanisms for achieving the goals of the Clean Water Act is the National Pollutant Discharge Elimination System of permits (NPDES permits), which is administered by the Environmental Protection Agency (EPA). The EPA has delegated responsibility to administer the NPDES permit program to the State of Washington on the basis of Chapter 90.48 RCW which defines the Department of Ecology's authority and obligations in administering the wastewater discharge permit program.

The regulations adopted by the State include procedures for issuing permits (Chapter 173-220 WAC), technical criteria for discharges from municipal wastewater treatment facilities (Chapter 173-221 WAC), water quality criteria for surface and ground waters (Chapters 173-201A and 200 WAC), and sediment management standards (Chapter 173-204 WAC). These regulations require that a permit be issued before discharge of wastewater to waters of the state is allowed. The regulations also establish the basis for effluent limitations and other requirements which are to be included in the permit. One of the requirements (WAC 173-220-060) for issuing a permit under the NPDES permit program is the preparation of a draft permit and an accompanying fact sheet. Public notice of the availability of the draft permit is required at least thirty days before the permit is issued (WAC 173-220-050). The fact sheet and draft permit are available for review (see Appendix A--Public Involvement) of the fact sheet for more detail on the Public Notice procedures).

The fact sheet and draft permit have been reviewed by the Permittee. Errors and omissions identified in this review have been corrected before going to public notice. After the public comment period has closed, the Department will summarize the substantive comments and the response to each comment. The summary and response to comments will become part of the file on the permit and parties submitting comments will receive a copy of the Department's response. The fact sheet will not be revised. Comments and the resultant changes to the permit will be summarized in Appendix C--Response to Comments.

BACKGROUND INFORMATION

DESCRIPTION OF THE FACILITY

The Langley wastewater treatment plant (WWTP) was originally built in 1963 at the foot of Anthes Street near the shoreline in town. The original plant was a spirogester (a type of Imhoff tank); a chlorine contact chamber was added in 1973.

The City of Langley constructed a secondary plant in 1991-92 at the current location outside of the downtown area. The Department provided a grant for part of the cost of the new plant. The new plant went on-line in October of 1992.

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The treatment process at the plant consists of a grit chamber, an influent grinder, two sequencing batch reactors (SBR), and a chlorine contact chamber. Sewage flows through the grinder and is aerated intermittently for about seven hours in the SBR. Effluent is decanted from the top of the SBR, disinfected in the chlorine contact chamber for a minimum of one hour, and discharged to Saratoga Passage. Flows alternate between the two SBR's; one processes wastewater while the other fills with wastewater. A plant layout diagram of the treatment facility is shown in Appendix D.

The sewage system generally flows to the old plant location at the foot of Anthes Street. From there sewage is pumped through two lift stations to the new treatment plant. Inflow and infiltration were investigated in the 1990 Facilities Plan for Secondary Treatment. The plan identified several sources of inflow and infiltration, and recommended corrections. Significant inflow problems were corrected during construction of the new treatment plant.

Flows to the plant are predominantly domestic sewage. No significant industrial users contribute to the system. The plant is classified as Class 2. A Class 2 and a Class 1 contract operator operate the plant during the day. The plant is not staffed during the night, but an alarm system at the plant is wired to City facilities and to the contract operators residences to notify them of problems that occur during the night.

Secondary treated and disinfected effluent is discharged from the facility into Saratoga Passage. The outfall is located about 1000 feet offshore in forty feet of water at mean lower low water. A 100-foot long diffuser with 10 ports was installed when the new treatment plant was built. A divers report from 1992 indicates that the end port on the diffuser is flanged shut.

RESIDUAL SOLIDS

The treatment facilities remove solids during the treatment of the wastewater at the headworks (grit and screenings), and at the primary clarifier, in addition to incidental solids (rags, scum, and other debris) removed as part of the routine maintenance of the equipment. Grit, rags, scum and screenings are drained and disposed of as solid waste at the local landfill.

Waste activated sludge is digested in two aerobic digesters and treated with flocculents, de-watered on a belt press, and then composted for eventual land application. Grit is disposed of at a local landfill. Some of the composted sludge is applied to municipal property near the treatment plant, and some is provided to local residents for private use. Several years ago the City submitted sludge analysis data for metals. The metals content revealed by that analysis are well below standards promulgated by the Environmental Protection Agency (EPA) in 40 CFR 503.

PERMIT STATUS

The previous permit for this facility was issued on February 4, 1994. The previous permit placed effluent limitations on 5-day Biochemical Oxygen Demand (BOD₅), Total Suspended Solids (TSS), pH, Fecal Coliform bacteria, and Total Residual Chlorine.

An application for permit renewal was submitted to the Department on August 5, 1998, and accepted by the Department on November 13, 1998.

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SUMMARY OF COMPLIANCE WITH THE PREVIOUS PERMIT

The facility was last inspected on May 20, 1998, a compliance inspection with sampling.

During the history of the previous permit, the Permittee has remained in nearly complete compliance, based on Discharge Monitoring Reports (DMRs) submitted to the Department and inspections conducted by the Department. All reported effluent data were reviewed for the 5-year period of January 1994 through January 1999. During this time period, the following violations were noted:

Date	Parameter	Limit	Reported Value
Nov. 1998	Mo. Avg. BOD, Mg/L	30	43
Nov. 1998	Wk. Avg. BOD, Mg/L	45	86
Jan. 1999	Mo. Avg. BOD, Mg/L	30	32

These violations have been attributed to mechanical failures, which have been corrected, and to a power outage. No other violations have been reported, nor has the facility exceeded its design flows or loadings.

WASTEWATER CHARACTERIZATION

The concentration of pollutants in the discharge was reported in the NPDES application and in discharge monitoring reports. The effluent is characterized as follows, as summarized from Discharge Monitoring Report data (see Appendix E):

Table 1: Wastewater Characterization (all data are shown as 5-year averages):

Parameter	Concentration
minimum pH	6.98
maximum pH	7.41
BOD, Mg/L	9
BOD, % Removal	97
BOD, ppd	6.0
TSS, Mg/L	7
TSS, % Removal	96
TSS, ppd	5
Chlorine residual, Mg/l	0.25
Chlorine, ppd	0.17
Flow, mgd	0.081
Fecal Coliform, #/100 ml	6
NH ₃ -N, Mg/L	0.56

PROPOSED PERMIT LIMITATIONS

Federal and State regulations require that effluent limitations set forth in a NPDES permit must be either technology- or water quality-based. Technology-based limitations for municipal discharges are set by regulation (40 CFR 133, and Chapters 173-220 and 173-221 WAC). Water quality-based limitations are based upon compliance with the Surface Water Quality Standards (Chapter 173-201A WAC), Ground Water Standards (Chapter 173-200 WAC), Sediment Quality Standards (Chapter 173-204 WAC) or the National Toxics Rule (Federal Register, Volume 57, No. 246, Tuesday, December 22, 1992.) The most stringent of these types of limits must be chosen for each of the parameters of concern. Each of these types of limits is described in more detail below.

The limits in this permit are based in part on information received in the application. The effluent constituents in the application were evaluated on a technology- and water quality-basis. The limits necessary to meet the rules and regulations of the State of Washington were determined and included in this permit. Ecology does not develop effluent limits for all pollutants that may be reported on the application as present in the effluent. Some pollutants are not treatable at the concentrations reported, are not controllable at the source, are not listed in regulation, and do not have a reasonable potential to cause a water quality violation. If significant changes occur in any constituent, as described in 40 CFR 122.42(a), the Permittee is required to notify the Department of Ecology.

DESIGN CRITERIA

In accordance with WAC 173-220-150 (1)(g), flows or waste loadings shall not exceed approved design criteria.

The design criteria for this treatment facility are as follows:

Table 2: Design Standards for the Langley WWTP.

Parameter	Design Quantity
Monthly average flow (max. month)	0.150 MGD
Annual average flow	0.135 MGD
Instantaneous peak flow	0.300 MGD
BOD ₅ influent loading	425 lbs./day
TSS influent loading	425 lbs./day

The previous permit and fact sheet contained conflicting information regarding mass loading (lbs/day) design information for BOD and TSS. The previous fact sheet documented the numbers shown above, but the previous permit indicated the following:

Avg. BOD loading for maximum month = 486 lb/day

Avg. TSS loading for maximum month = 550 lb/day

The approved 1991 plans for the treatment facility lists treatment plant design loadings of 425 lb/day for BOD and TSS, but also lists maximum daily design loadings for septage of 58 lb/day BOD and 125 lb/day of TSS. In the previous permit, these septage loadings were added to the

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plant design loadings to obtain the design loadings of 486 lb/day and 550 lb/day for BOD and TSS, respectively. This is now believed to have been in error; it appears to be improper to add maximum *daily* design loadings (septage) to *monthly average* design loadings (overall plant). It is believed that the septage numbers were intended to have been included in the overall plant loadings, rather than added to them.

For the current permit, the maximum monthly average design loadings of 425 lb/day for BOD and TSS are considered to be the approved design parameters for the overall plant, and the permit has been modified to reflect these lower numbers.

TECHNOLOGY-BASED EFFLUENT LIMITATIONS

Municipal wastewater treatment plants are a category of discharger for which technology-based effluent limits have been promulgated by federal and state regulations. These effluent limitations are given in the Code of Federal Regulations (CFR) 40 CFR Part 133 (federal) and in Chapter 173-221 WAC (state). These regulations are performance standards that constitute all known available and reasonable methods of prevention, control, and treatment for municipal wastewater.

The following technology-based limits for pH, fecal coliform, BOD₅, and TSS are taken from Chapter 173-221 WAC:

Table 3: Technology-based Limits.

Parameter	Limit
pH:	shall be within the range of 6 to 9 standard units.
Fecal Coliform Bacteria	Monthly Geometric Mean = 200 organisms/100 mL Weekly Geometric Mean = 400 organisms/100 mL
BOD ₅ (concentration)	Average Monthly Limit is the most stringent of the following: - 30 mg/L - may not exceed fifteen percent (15%) of the average influent concentration Average Weekly Limit = 45 mg/L
TSS (concentration)	Average Monthly Limit is the most stringent of the following: - 30 mg/L - may not exceed fifteen percent (15%) of the average influent concentration Average Weekly Limit = 45 mg/L

The existing permit has chlorine limits of 0.43 mg/L monthly average, and 1.13 mg/L maximum daily concentrations, and the facility is able to comply with them. The proposed permit includes the same limits.

Monthly effluent mass loadings were calculated as the maximum monthly design flow (MGD) x concentration limit (Mg/L) x 8.34 (conversion factor) = mass limit (lb/day). The weekly average

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effluent mass loadings were calculated as 1.5 x monthly loading, in lbs/day. The resulting mass loading limitations for this permit are:

Parameter	Average Monthly Mass Limit	Average Weekly Mass Limit
Biochemical Oxygen Demand (5 day)	38 lbs/day	56 lbs/day
Total Suspended Solids	38 lbs/day	56 lbs/day

SURFACE WATER QUALITY-BASED EFFLUENT LIMITATIONS

In order to protect existing water quality and preserve the designated beneficial uses of Washington's surface waters, WAC 173-201A-060 states that waste discharge permits shall be conditioned such that the discharge will meet established Surface Water Quality Standards. The Washington State Surface Water Quality Standards (Chapter 173-201A WAC) is a state regulation designed to protect the beneficial uses of the surface waters of the state. Water quality-based effluent limitations may be based on an individual waste load allocation (WLA) or on a WLA developed during a basin-wide total maximum daily loading study (TMDL).

NUMERICAL CRITERIA FOR THE PROTECTION OF AQUATIC LIFE

"Numerical" water quality criteria are numerical values set forth in the State of Washington's Water Quality Standards for Surface Waters (Chapter 173-201A WAC). They specify the levels of pollutants allowed in a receiving water while remaining protective of aquatic life. Numerical criteria set forth in the Water Quality Standards are used along with chemical and physical data for the wastewater and receiving water to derive the effluent limits in the discharge permit. When surface water quality-based limits are more stringent or potentially more stringent than technology-based limitations, they must be used in a permit.

NUMERICAL CRITERIA FOR THE PROTECTION OF HUMAN HEALTH

The state was issued 91 numeric water quality criteria for the protection of human health by the U.S. EPA (EPA 1992). These criteria are designed to protect humans from cancer and other disease and are primarily applicable to fish and shellfish consumption and drinking water from surface waters.

NARRATIVE CRITERIA

In addition to numerical criteria, "narrative" water quality criteria (WAC 173-201A-030) limit toxic, radioactive, or deleterious material concentrations below those which have the potential to adversely affect characteristic water uses, cause acute or chronic toxicity to biota, impair aesthetic values, or adversely affect human health. Narrative criteria protect the specific beneficial uses of all fresh (WAC 173-201A-130) and marine (WAC 173-201A-140) waters in the State of Washington.

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ANTIDegradation

The State of Washington's Antidegradation Policy requires that discharges into a receiving water shall not further degrade the existing water quality of the water body. In cases where the natural conditions of a receiving water are of lower quality than the criteria assigned, the natural conditions shall constitute the water quality criteria. Similarly, when the natural conditions of a receiving water are of higher quality than the criteria assigned, the natural conditions shall constitute the water quality criteria. More information on the State Antidegradation Policy can be obtained by referring to WAC 173-201A-070.

CRITICAL CONDITIONS

Surface water quality-based limits are derived for the waterbody's critical condition, which represents the receiving water and waste discharge condition with the highest potential for adverse impact on the aquatic biota, human health, and existing or characteristic water body uses.

MIXING ZONES

The Water Quality Standards allow the Department of Ecology to authorize mixing zones around a point of discharge in establishing surface water quality-based effluent limits. Both "acute" and "chronic" mixing zones may be authorized for pollutants that can have a toxic effect on the aquatic environment near the point of discharge. The concentration of pollutants at the boundary of these mixing zones may not exceed the numerical criteria for that type of zone. Mixing zones can only be authorized for discharges that are receiving all known, available, and reasonable methods of prevention, control and treatment (AKART) and in accordance with other mixing zone requirements of WAC 173-201A-100.

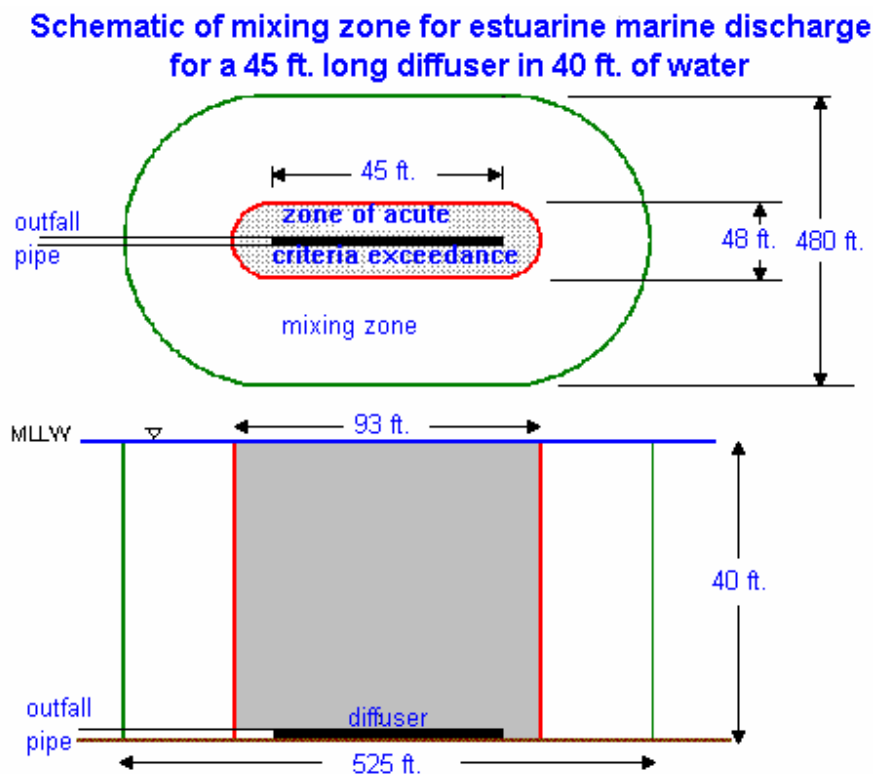
The National Toxics Rule (EPA, 1992) allows the chronic mixing zone to be used to meet human health criteria.

Because of the reasonable potential for pollutants (chlorine) in the proposed discharge to exceed water quality criteria, a mixing zone will be authorized. The Permittee provides secondary treatment of sewage, and thus meets the AKART requirement for the Department to authorize a mixing zone. WAC 173-201A-100 requires the mixing zone not extend further than 240 feet (= 200 ft + depth of diffuser) from the outfall diffuser and the zone of acute criteria exceedance not extend further than 24 feet (= 10% of chronic mixing zone) from the outfall diffuser. The Department has determined that the dilution at the boundary of the mixing zone is **400:1**, and the dilution at the edge of the zone of acute criteria exceedance is **87:1**.

The extent of effluent dilution in the receiving water was determined by the use of the EPA Plumes interface - the UM Model. Data used for the modeling included July, 1970 current speed data for Saratoga Passage from the National Oceanic and Atmospheric Administration in Seattle, Washington (see Appendix J), and ambient monitoring data collected in Saratoga Passage from 1989 through 1992 by the Department's Environmental Investigations Laboratory. The critical conditions for dilution are based on severe stratification of fresh water and salt water that occurred during December of two different years.

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Velocities for the modeling are based on the 90% probability low velocity for Saratoga Passage current. Chronic dilution is based on net current velocity in Saratoga Passage. Mixing zone calculations and summaries are shown in Appendix K.



DESCRIPTION OF THE RECEIVING WATER

The facility discharges to Saratoga Passage, which is designated as a Class A Marine receiving water in the vicinity of the outfall. There are no other nearby point source outfalls, nor are there any known significant nearby non-point sources of pollutants. Characteristic uses include the following:

Water supply (domestic, industrial, agricultural); stock watering; fish migration; fish and shellfish rearing, spawning and harvesting; wildlife habitat; primary contact recreation; sport fishing; boating and aesthetic enjoyment; commerce and navigation.

Water quality of this class shall meet or exceed the requirements for all or substantially all uses.

SURFACE WATER QUALITY CRITERIA

Applicable criteria are defined in Chapter 173-201A WAC for aquatic biota. In addition, U.S. EPA has promulgated human health criteria for toxic pollutants (EPA 1992). Criteria for this discharge are summarized below:

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Fecal Coliforms	14 organisms/100 mL maximum geometric mean
Dissolved Oxygen	6 mg/L minimum
Temperature	16 degrees Celsius maximum or incremental increases above background
pH	7.0 to 8.5 standard units
Turbidity	less than 5 NTUs above background
Toxics	No toxics in toxic amounts

CONSIDERATION OF SURFACE WATER QUALITY-BASED LIMITS FOR NUMERIC CRITERIA

Utilizing the mixing zone information, modelling results and effluent data for the discharge, the following determinations have been made:

BOD₅--Under critical conditions there is no predicted violation of the Water Quality Standards for Surface Waters. Therefore, the technology-based effluent limitation for BOD₅ was placed in the permit.

Temperature--Under critical conditions there is no predicted violation of the Water Quality Standards for Surface Waters. Therefore, no effluent limitation for temperature was placed in the proposed permit.

pH--Because of the high buffering capacity of marine water, compliance with the technology-based limits of 6 to 9 will assure compliance with the Water Quality Standards for Surface Waters.

Fecal coliform--The numbers of fecal coliform were modeled by simple mixing analysis using the technology-based limit of 400 organisms per 100 ml and a dilution factor of ____.

Under critical conditions there is no predicted violation of the Water Quality Standards for Surface Waters with the technology-based limit. Therefore, the technology-based effluent limitation for fecal coliform bacteria was placed in the proposed permit.

Toxic Pollutants--Federal regulations (40 CFR 122.44) require NPDES permits to contain effluent limits for toxic chemicals in an effluent whenever there is a reasonable potential for those chemicals to exceed the surface water quality criteria. This process occurs concurrently with the derivation of technology-based effluent limits. Facilities with technology-based effluent limits defined in regulation are not exempted from meeting the Water Quality Standards for Surface Waters or from having surface water quality-based effluent limits.

The impact of cadmium, chromium, copper, lead, nickel, and zinc were modeled during the previous permit cycle, using the method described by EPA using dilution factors described above. The analysis showed no reasonable potential to violate State water quality standards for any of those toxic substances. The permit contains a limit for chlorine because its concentration is directly controlled by the treatment plant staff. As discussed under "Technology-Based Effluent Limitations," chlorine discharge limits are based on previous permit limitations.

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The previous permit required characterization testing for ammonia on a monthly basis to provide information for a detailed analysis during this permit cycle. The reported ammonia data are shown in Appendix H, and the acute and chronic criteria for ammonia are shown in Appendices F and I. Based on these data, together with the Reasonable Potential Calculation (Appendix G), ammonia levels in the Langley discharge are found to be far below those which would have a reasonable potential to violate water quality standards. Therefore, no limit is proposed for ammonia. Furthermore, no additional characterization testing for this parameter will be required in this permit.

Whole Effluent Toxicity

In addition to the requirement not to exceed specific chemical parameters, the Water Quality Standards require that the effluent not cause toxic effects in the receiving waters. Unidentified sources of toxicity are not expected to be present in the effluent from this small municipal discharge. No whole effluent toxicity testing is required in this permit.

HUMAN HEALTH

Washington's water quality standards now include 91 numeric health-based criteria that must be considered in NPDES permits. These criteria were promulgated for the state by the U.S. EPA in its National Toxics Rule (Federal Register, Volume 57, No. 246, Tuesday, December 22, 1992).

The Department has determined that the applicant's discharge does not contain chemicals of concern based on existing data or knowledge. The discharge will be re-evaluated for impacts to human health at the next permit reissuance.

SEDIMENT QUALITY

The Department has promulgated aquatic sediment standards (Chapter 173-204 WAC) to protect aquatic biota and human health. These standards state that the Department may require Permittees to evaluate the potential for the discharge to cause a violation of applicable standards (WAC 173-204-400).

The Department has determined through a review of the discharger characteristics and effluent characteristics that this discharge has no reasonable potential to violate the Sediment Management Standards.

COMPARISON OF EFFLUENT LIMITS WITH THE EXISTING PERMIT ISSUED FEBRUARY 4, 1994:

Except for chlorine, all effluent limits proposed for the Langley permit are technology-based, and are therefore identical to those in the previous permit. Also, as the approved design flow for this plant is unchanged from the previous permit cycle, the mass emission (pounds per day) limitations are likewise unchanged. And, as discussed earlier, chlorine limits are based on the previous permit as well. Therefore, the existing limits and proposed limits are identical. These limits are shown below:

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EFFLUENT LIMITATIONS		
Parameter	Average Monthly	Average Weekly
Biochemical Oxygen Demand (5 day)	30 mg/L, 38 lbs/day	45 mg/L, 56 lbs/day
Total Suspended Solids	30 mg/L, 38 lbs/day	45 mg/L, 56 lbs/day
Fecal Coliform Bacteria	200 /100 mL	400 /100 mL
pH	Daily minimum is equal to or greater than 6 and the daily maximum is less than or equal to 9.	
Parameter	Average Monthly	Maximum Daily
Total Residual Chlorine	0.43 mg/L (0.54 lb/day)	1.13 mg/L

MONITORING REQUIREMENTS

Monitoring, recording, and reporting are required (WAC 173-220-210 and 40 CFR 122.41) to verify that the effluent limitations are being achieved.

The monitoring schedule is detailed in the proposed permit under Condition S.2. Specified monitoring frequencies take into account the quantity and variability of discharge, the treatment method, past compliance, significance of pollutants, and cost of monitoring. The required monitoring frequency is consistent with agency guidance given in the current version of Ecology's Permit Writer's Manual (July 1994) for Activated Sludge plants with design flow less than 2.0 MGD.

LAB ACCREDITATION

With the exception of certain parameters the permit requires all monitoring data to be prepared by a laboratory registered or accredited under the provisions of Chapter 173-50 WAC, Accreditation of Environmental Laboratories. The laboratory at this facility is accredited for General Chemistry and Microbiology.

OTHER PERMIT CONDITIONS

REPORTING AND RECORDKEEPING

The conditions of S3. are based on the authority to specify any appropriate reporting and recordkeeping requirements to prevent and control waste discharges (WAC 273-220-210).

PREVENTION OF FACILITY OVERLOADING

Overloading of the treatment plant is a violation of the terms and conditions of the permit. To prevent this from occurring, RCW 90.48.110 and WAC 173-220-150 require the Permittee to

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take the actions detailed in proposed permit requirement S.4. to plan expansions or modifications before existing capacity is reached and to report and correct conditions that could result in new or increased discharges of pollutants. Condition S.4. restricts the amount of flow.

OPERATION AND MAINTENANCE (O&M)

The proposed permit contains condition S.5. as authorized under RCW 90.48.110, WAC 173-220-150, Chapter 173-230 WAC, and WAC 173-240-080. It is included to ensure proper operation and regular maintenance of equipment, and to ensure that adequate safeguards are taken so that constructed facilities are used to their optimum potential in terms of pollutant capture and treatment.

RESIDUAL SOLIDS HANDLING

To prevent water quality problems the Permittee is required in permit condition S7. to store and handle all residual solids (grit, screenings, scum, sludge, and other solid waste) in accordance with the requirements of RCW 90.48.080 and State Water Quality Standards.

The final use and disposal of sewage sludge from this facility is regulated by U.S. EPA under 40 CFR 503. The disposal of other solid waste is under the jurisdiction of the Island County Health Department.

PRETREATMENT

WASTEWATER PERMIT REQUIRED

RCW 90.48 and WAC 173-216-040 require Significant Industrial Users (SIUs) to obtain a permit prior to discharge of industrial waste to the Permittee's sewerage system. This provision prohibits the POTW from accepting industrial wastewater from any such dischargers without authorization from the Department.

DUTY TO ENFORCE DISCHARGE PROHIBITIONS

This provision prohibits the POTW from authorizing or permitting an industrial discharger to discharge certain types of waste into the sanitary sewer. The first portion of the provision prohibits acceptance of pollutants which cause pass through or interference. The definitions of pass through and interference are in Appendix B of the fact sheet.

The second portion of this provision prohibits the POTW from accepting certain specific types of wastes, namely those which are explosive, flammable, excessively acidic, basic, otherwise corrosive, or obstructive to the system. In addition wastes with excessive BOD, petroleum based oils, or which result in toxic gases are prohibited to be discharged. The regulatory basis for these prohibitions is 40 CFR Part 403, with the exception of the pH provisions which are based on WAC 173-216-060.

The third portion of this provision prohibits certain types of discharges unless the POTW receives prior authorization from the Department. The discharges include cooling water in significant volumes, stormwater and other direct inflow sources, and wastewaters significantly affecting system hydraulic loading, which do not require treatment.

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GENERAL CONDITIONS

General Conditions are based directly on state and federal law and regulations and have been standardized for all individual municipal NPDES permits issued by the Department.

PERMIT ISSUANCE PROCEDURES

PERMIT MODIFICATIONS

The Department may modify this permit to impose numerical limitations, if necessary to meet Water Quality Standards, Sediment Quality Standards, or Ground Water Standards, based on new information obtained from sources such as inspections, effluent monitoring, outfall studies, and effluent mixing studies.

The Department may also modify this permit as a result of new or amended state or federal regulations.

RECOMMENDATION FOR PERMIT ISSUANCE

This proposed permit meets all statutory requirements for authorizing a wastewater discharge, including those limitations and conditions believed necessary to protect human health, aquatic life, and the beneficial uses of waters of the State of Washington. The Department proposes that this permit be issued for five (5) years.

REFERENCES FOR TEXT AND APPENDICES

Environmental Protection Agency (EPA)

- 1992. National Toxics Rule. Federal Register, V. 57, No. 246, Tuesday, December 22, 1992.
- 1991. Technical Support Document for Water Quality-based Toxics Control. EPA/505/2-90-001.
- 1988. Technical Guidance on Supplementary Stream Design Conditions for Steady State Modeling. USEPA Office of Water, Washington, D.C.
- 1985. Water Quality Assessment: A Screening Procedure for Toxic and Conventional Pollutants in Surface and Ground Water. EPA/600/6-85/002a.
- 1983. Water Quality Standards Handbook. USEPA Office of Water, Washington, D.C.

Metcalf and Eddy.

- 1991. Wastewater Engineering, Treatment, Disposal, and Reuse. Third Edition.

Tsivoglou, E.C., and J.R. Wallace.

- 1972. Characterization of Stream Reaeration Capacity. EPA-R3-72-012. (Cited in EPA 1985 op.cit.)

Washington State Department of Ecology.

- 1994. Permit Writer's Manual. Publication Number 92-109

Water Pollution Control Federation.

- 1976. Chlorination of Wastewater.

Wright, R.M., and A.J. McDonnell.

- 1979. In-stream Deoxygenation Rate Prediction. Journal Environmental Engineering Division, ASCE. 105(E2). (Cited in EPA 1985 op.cit.)

APPENDIX A--PUBLIC INVOLVEMENT INFORMATION

The Department has tentatively determined to reissue a permit to the applicant listed on page 1 of this fact sheet. The permit contains conditions and effluent limitations which are described in the rest of this fact sheet.

Public notice of application was published on November 18 and 25, 1998, in The Whidbey Press, to inform the public that an application had been submitted and to invite comment on the reissuance of this permit.

The Department will publish a Public Notice of Draft (PNOD) on September 1, 1999, in The Whidbey Press to inform the public that a draft permit and fact sheet are available for review. Interested persons are invited to submit written comments regarding the draft permit. The draft permit, fact sheet, and related documents are available for inspection and copying between the hours of 8:00 a.m. and 5:00 p.m. weekdays, by appointment, at the regional office listed below. Written comments should be mailed to:

Water Quality Permit Coordinator
Department of Ecology
Northwest Regional Office
3190 - 160 Ave. S.E.
Bellevue, WA 98008.

Any interested party may comment on the draft permit or request a public hearing on this draft permit within the thirty (30) day comment period to the address above. The request for a hearing shall indicate the interest of the party and the reasons why the hearing is warranted. The Department will hold a hearing if it determines there is a significant public interest in the draft permit (WAC 173-220-090). Public notice regarding any hearing will be circulated at least thirty (30) days in advance of the hearing. People expressing an interest in this permit will be mailed an individual notice of hearing (WAC 173-220-100).

The Department will consider all comments received within thirty (30) days from the date of public notice of draft indicated above, in formulating a final determination to issue, revise, or deny the permit. The Department's response to all significant comments is available upon request and will be mailed directly to people expressing an interest in this permit.

Further information may be obtained from the Department by telephone, (425) 649-7201, or by writing to the address listed above.

This permit and fact sheet were written by David Nunnallee.

APPENDIX B--GLOSSARY

Acute Toxicity--The lethal effect of a pollutant on an organism that occurs within a short period of time, usually 48 to 96 hours.

AKART-- An acronym for “all known, available, and reasonable methods of prevention, control, and treatment”.

Ambient Water Quality--The existing environmental condition of the water in a receiving water body.

Ammonia--Ammonia is produced by the breakdown of nitrogenous materials in wastewater. Ammonia is toxic to aquatic organisms, exerts an oxygen demand, and contributes to eutrophication. It also increases the amount of chlorine needed to disinfect wastewater.

Average Monthly Discharge Limitation --The highest allowable average of daily discharges over a calendar month, calculated as the sum of all daily discharges measured during a calendar month divided by the number of daily discharges measured during that month (except in the case of fecal coliform). The daily discharge is calculated as the average measurement of the pollutant over the day.

Average Weekly Discharge Limitation -- The highest allowable average of daily discharges over a calendar week, calculated as the sum of all daily discharges measured during a calendar week divided by the number of daily discharges measured during that week. The daily discharge is calculated as the average measurement of the pollutant over the day.

Best Management Practices (BMPs)--Schedules of activities, prohibitions of practices, maintenance procedures, and other physical, structural and/or managerial practices to prevent or reduce the pollution of waters of the State. BMPs include treatment systems, operating procedures, and practices to control: plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage. BMPs may be further categorized as operational, source control, erosion and sediment control, and treatment BMPs.

BOD₅--Determining the Biochemical Oxygen Demand of an effluent is an indirect way of measuring the quantity of organic material present in an effluent that is utilized by bacteria. The BOD₅ is used in modeling to measure the reduction of dissolved oxygen in a receiving water after effluent is discharged. Stress caused by reduced dissolved oxygen levels makes organisms less competitive and less able to sustain their species in the aquatic environment. Although BOD is not a specific compound, it is defined as a conventional pollutant under the federal Clean Water Act.

Bypass--The intentional diversion of waste streams from any portion of a treatment facility.

Chlorine--Chlorine is used to disinfect wastewaters of pathogens harmful to human health. It is also extremely toxic to aquatic life.

Chronic Toxicity--The effect of a pollutant on an organism over a relatively long time, often 1/10 of an organism's lifespan or more. Chronic toxicity can measure survival, reproduction or growth rates, or other parameters to measure the toxic effects of a compound or combination of compounds.

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Clean Water Act (CWA)--The Federal Water Pollution Control Act enacted by Public Law 92-500, as amended by Public Laws 95-217, 95-576, 96-483, 97-117; USC 1251 et seq.

Combined Sewer Overflow (CSO)--The event during which excess combined sewage flow caused by inflow is discharged from a combined sewer, rather than conveyed to the sewage treatment plant because either the capacity of the treatment plant or the combined sewer is exceeded.

Compliance Inspection - Without Sampling--A site visit for the purpose of determining the compliance of a facility with the terms and conditions of its permit or with applicable statutes and regulations.

Compliance Inspection - With Sampling--A site visit to accomplish the purpose of a Compliance Inspection - Without Sampling and as a minimum, sampling and analysis for all parameters with limits in the permit to ascertain compliance with those limits; and, for municipal facilities, sampling of influent to ascertain compliance with the percent removal requirement. Additional sampling may be conducted.

Composite Sample--A mixture of grab samples collected at the same sampling point at different times, formed either by continuous sampling or by mixing a minimum of four discrete samples. May be "time-composite"(collected at constant time intervals) or "flow-proportional" (collected either as a constant sample volume at time intervals proportional to stream flow, or collected by increasing the volume of each aliquot as the flow increased while maintaining a constant time interval between the aliquots.

Construction Activity--Clearing, grading, excavation and any other activity which disturbs the surface of the land. Such activities may include road building, construction of residential houses, office buildings, or industrial buildings, and demolition activity.

Critical Condition--The time during which the combination of receiving water and waste discharge conditions have the highest potential for causing toxicity in the receiving water environment. This situation usually occurs when the flow within a water body is low, thus, its ability to dilute effluent is reduced.

Dilution Factor--A measure of the amount of mixing of effluent and receiving water that occurs at the boundary of the mixing zone. Expressed as the inverse of the effluent fraction e.g., a dilution factor of 10 means the effluent comprises 10% by volume and the receiving water 90%.

Engineering Report--A document which thoroughly examines the engineering and administrative aspects of a particular domestic or industrial wastewater facility. The report shall contain the appropriate information required in WAC 173-240-060 or 173-240-130.

Fecal Coliform Bacteria--Fecal coliform bacteria are used as indicators of pathogenic bacteria in the effluent that are harmful to humans. Pathogenic bacteria in wastewater discharges are controlled by disinfecting the wastewater. The presence of high numbers of fecal coliform bacteria in a water body can indicate the recent release of untreated wastewater and/or the presence of animal feces.

Grab Sample--A single sample or measurement taken at a specific time or over as short period of time as is feasible.

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Industrial User-- A discharger of wastewater to the sanitary sewer which is not sanitary wastewater or is not equivalent to sanitary wastewater in character.

Industrial Wastewater--Water or liquid-carried waste from industrial or commercial processes, as distinct from domestic wastewater. These wastes may result from any process or activity of industry, manufacture, trade or business, from the development of any natural resource, or from animal operations such as feed lots, poultry houses, or dairies. The term includes contaminated storm water and, also, leachate from solid waste facilities.

Infiltration and Inflow (I/I)--"Infiltration" means the addition of ground water into a sewer through joints, the sewer pipe material, cracks, and other defects. "Inflow" means the addition of precipitation-caused drainage from roof drains, yard drains, basement drains, street catch basins, etc., into a sewer.

Interference -- A discharge which, alone or in conjunction with a discharge or discharges from other sources, both:

Inhibits or disrupts the POTW, its treatment processes or operations, or its sludge processes, use or disposal and;

Therefore is a cause of a violation of any requirement of the POTW's NPDES permit (including an increase in the magnitude or duration of a violation) or of the prevention of sewage sludge use or disposal in compliance with the following statutory provisions and regulations or permits issued thereunder (or more stringent State or local regulations): Section 405 of the Clean Water Act, the Solid Waste Disposal Act (SWDA) (including title II, more commonly referred to as the Resource Conservation and Recovery Act (RCRA), and including State regulations contained in any State sludge management plan prepared pursuant to subtitle D of the SWDA), sludge regulations appearing in 40 CFR Part 507, the Clean Air Act, the Toxic Substances Control Act, and the Marine Protection, Research and Sanctuaries Act.

Major Facility--A facility discharging to surface water with an EPA rating score of > 80 points based on such factors as flow volume, toxic pollutant potential, and public health impact.

Maximum Daily Discharge Limitation--The highest allowable daily discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling. The daily discharge is calculated as the average measurement of the pollutant over the day.

Method Detection Level (MDL)--The minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is above zero and is determined from analysis of a sample in a given matrix containing the analyte.

Minor Facility--A facility discharging to surface water with an EPA rating score of < 80 points based on such factors as flow volume, toxic pollutant potential, and public health impact.

Mixing Zone--A volume that surrounds an effluent discharge within which water quality criteria may be exceeded. The area of the authorized mixing zone is specified in a facility's permit and follows procedures outlined in State regulations (Chapter 173-201A WAC).

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National Pollutant Discharge Elimination System (NPDES)--The NPDES (Section 402 of the Clean Water Act) is the Federal wastewater permitting system for discharges to navigable waters of the United States. Many states, including the State of Washington, have been delegated the authority to issue these permits. NPDES permits issued by Washington State permit writers are joint NPDES/State permits issued under both State and Federal laws.

Pass through -- A discharge which exits the POTW into waters of the-State in quantities or concentrations which, alone or in conjunction with a discharge or discharges from other sources, is a cause of a violation of any requirement of the POTW's NPDES permit (including an increase in the magnitude or duration of a violation), or which is a cause of a violation of State water quality standards.

pH--The pH of a liquid measures its acidity or alkalinity. A pH of 7 is defined as neutral, and large variations above or below this value are considered harmful to most aquatic life.

Potential Significant Industrial User--A potential significant industrial user is defined as an Industrial User which does not meet the criteria for a Significant Industrial User, but which discharges wastewater meeting one or more of the following criteria:

- a. Exceeds 0.5 % of treatment plant design capacity criteria and discharges <25,000 gallons per day or;
- b. Is a member of a group of similar industrial users which, taken together, have the potential to cause pass through or interference at the POTW (e.g. facilities which develop photographic film or paper, and car washes).

The Department may determine that a discharger initially classified as a potential significant industrial user should be managed as a significant industrial user.

Quantitation Level (QL)-- A calculated value five times the MDL (method detection level).

Significant Industrial User (SIU)--

- 1) All industrial users subject to Categorical Pretreatment Standards under 40 CFR 403.6 and 40 CFR Chapter I, Subchapter N and;
- 2) Any other industrial user that: discharges an average of 25,000 gallons per day or more of process wastewater to the POTW (excluding sanitary, noncontact cooling, and boiler blow-down wastewater); contributes a process wastestream that makes up 5 percent or more of the average dry weather hydraulic or organic capacity of the POTW treatment plant; or is designated as such by the Control Authority* on the basis that the industrial user has a reasonable potential for adversely affecting the POTW's operation or for violating any pretreatment standard or requirement (in accordance with 40 CFR 403.8(f)(6)).

Upon finding that the industrial user meeting the criteria in paragraph 2, above, has no reasonable potential for adversely affecting the POTW's operation or for violating any pretreatment standard or requirement, the Control Authority* may at any time, on its own initiative or in response to a petition received from an industrial user or POTW, and in accordance with 40 CFR 403.8(f)(6), determine that such industrial user is not a significant industrial user.

*The term "Control Authority" refers to the Washington State Department of Ecology in the case of non-delegated POTWs or to the POTW in the case of delegated POTWs.

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State Waters--Lakes, rivers, ponds, streams, inland waters, underground waters, salt waters, wetlands, and all other surface waters and watercourses within the jurisdiction of the state of Washington.

Stormwater--That portion of precipitation that does not naturally percolate into the ground or evaporate, but flows via overland flow, interflow, pipes, and other features of a storm water drainage system into a defined surface water body, or a constructed infiltration facility.

Technology-based Effluent Limit--A permit limit that is based on the ability of a treatment method to reduce the pollutant.

Total Suspended Solids (TSS)--Total suspended solids are the particulate materials in an effluent. Large quantities of TSS discharged to a receiving water may result in solids accumulation. Apart from any toxic effects attributable to substances leached out by water, suspended solids may kill fish, shellfish, and other aquatic organisms by causing abrasive injuries and by clogging the gills and respiratory passages of various aquatic fauna. Indirectly, suspended solids can screen out light and can promote and maintain the development of noxious conditions through oxygen depletion.

Upset--An exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the Permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, lack of preventative maintenance, or careless or improper operation.

Water Quality-based Effluent Limit--A limit on the concentration or mass of an effluent parameter that is intended to prevent the concentration of that parameter from exceeding its water quality criterion after it is discharged into a receiving water.

APPENDIX C--RESPONSE TO COMMENTS

No comments were received during the public comment period.

OTHER APPENDICES:

APPENDIX D -- PLANT LAYOUT DIAGRAM

APPENDIX E -- DISCHARGE MONITORING REPORT DATA

APPENDIX F -- SELECTED WATER QUALITY CRITERIA

APPENDIX G -- REASONABLE POTENTIAL CALCULATION

APPENDIX H -- CHLORINE & AMMONIA EFFLUENT DATA

APPENDIX I -- SALTWATER AMMONIA CALCULATIONS

APPENDIX J -- CURRENT VELOCITIES

APPENDIX K -- MIXING ZONE CALCULATIONS & SUMMARIES